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ABSTRACT

The purpose of this booklet is to introduce teachers and students to the Blacksmith's Shop, one of the many craft programs available for student participation at the Brookville Homestead site developed to recreate life as it was in the early days of Long Island's settlement. Active participation in the blacksmithing craft activity is designed to be an exciting facet of an overall effort to develop a more viable historical perspective within the students who visit the site. The vital role played by the blacksmith in his community is not readily apparent today; yet, the students' awareness of this role can greatly enhance their experience. With this in mind, a brief history and description of the blacksmith's trade is provided. Suggestions for incorporating this background information into pre-trip classroom activities, designed not only to develop knowledge specific to blacksmithing but also to increase students' perception of life style differences between "then" and "now", are presented. Post-trip activities recommended include story writing, role playing, skits, creating mobiles of homesteaders' tools, designing a picture dictionary of blacksmithing related vocabulary, and researching community history. (Author/NEC)

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THE BLACKSMITH CRAFT PROGRAM

at the

BOCES ENVIRONMENTAL EDUCATION CENTER AT BROOKVILLE

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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PREFACE

Our role at BOCES is to facilitate your use of the out-of-doors for learning. One of our main goals is to enable students, teachers, and administrators to develop a sensitivity to the environment through action-oriented, problem-solving interdiscip'inary programs.

The Blacksmith's Shop, one facet of the Homestead Ecology Program located at the Brookville site, allows participants to learn about an important part of life of the past through observation and experience.

The BOCES Outdoor and Environmental Education Center at Brookville offers a unique opportunity for all school groups.

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Mr. Norman Skliar, Administrator

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INTRODUCTION

The purpose of this booklet is to introduce teachers and students to the Blacksmith's Shop at the Brookville Homestead site. This is one of the many craft programs available for student participation at this site. All of the activities which are part of the Homesteading Experience were developed to recreate life as it was in the early days of Long Island's settlement.

The vital role played by the blacksmith in his community is not readily apparent today; yet, the students' awareness of this role can greatly enhance their experience at the Brookville Blacksmith Shop. With this in mind, a brief history and description of the blacksmith's trade is provided in the first half of this booklet. The latter portion of the booklet has some suggestions for incorporating this background information into pre-trip classroom activities. These activities are designed not only to develop knowledge specific to blacksmithing but also to increase the students' perception of life style differences between "then" and "now." As part of the Classroom Activities section, there are also some suggestions for integrating the actual experience into the on-going classroom program upon completion of the field experience.

Active participation in the blacksmithing craft activity at Brookville is designed to be an exciting facet of an overall effort to develop a more viable historical perspective within the students who visit this site.

I. BACKGROUND

A. THE HISTORY OF BLACKSMITHING

Under a spreading chestnut tree
the village smithy stands;
The smith, a mighty man is he,
with large and sinewy hands;
And the muscles of his brawny arms
are strong as iron bands.

Henry Wadsworth Longfellow

The first stanza of this famous poem, "The Village Blacksmith," by Henry Wadsworth Longfellow, has allowed us to remember the important work of the blacksmith in our history and the history of civilization. The seven remaining verses poetically describe the hard-working life of the blacksmith of years gone by, and may be found in many poetry anthologies.

Blacksmithing is the art or trade of shaping iron into the various tools and items necessary for living and working. Blacksmiths first appeared six thousand years ago in Caucasus (a region in Western Russia). Iron, the newly discovered metal, was plentiful and tools and implements fashioned from this new material were stronger, lasted longer, and were cheaper to produce than their predecessors made of bronze and wood.

The God of Blacksmiths

The importance of the blacksmith in the life of the village has long been recognized, beginning in ancient Greece. The blacksmith Hephaestus was an Olympian god who was skilled in all crafts. He made tools and weapons, and even forged four beautiful handmaidens whom he endowed with life so that they could assist him in his workshop!

When one considers all the articles for which the blacksmith was responsible--hammers, axes, knives, chisels, wheels, horseshoes, toys, ice skates, to name a few--it is evident that without him people would have remained in the stone age. The innumerable Smiths in telephone books are descendants of blacksmiths and reflect the number of these important tradesmen in history.

finished shoe

Chisel

sickle

The Blacksmith in His Village

Every village and crossroad had a blacksmith who was the center of village activity. He made and repaired all of the tools and implements for agriculture, such as sickles, picks, and plows. He was responsible for the tools and metal parts used in building the houses in the village, the implements for the kitchen such as knives, pots and pans, and innumberable items for home life. He made the tools for the other village craftsmen who worked in wood, soft metals, and stone. In the area of transportation, the blacksmith made the wheels for wagons and carriages, and parts for ships. He also made weapons of war used to protect his village.

Horseshoes

The blacksmith is often identified as the shoer of horses, and indeed this was one important part of his work. When paved roads came into existence, it was the blacksmith who forged the horseshoes that protected the feet of the horses. The blacksmith who primarily shoed horses was called a farrier.

The Industrial Age and the Blacksmith's Changing Role

Until roughly the middle of the nineteenth century, the typical village blacksmith in America was a generalist, making all of the iron objects necessary for life. Around 1840, with the development of steam power, steam-driven hammers were used to mass-produce many of the tools, rendering them cheaper and more plentiful than the handmade products from the blacksmith's shop. So a new type of job for blacksmiths was created. Smiths worked in railroad repair shops, fixing axles, boxcars, and making the special tools needed to repair tracks and cars.

In the old days blacksmiths worked entirely with iron. Now steel was introduced as a new raw material. Steel is an alloy, or mixture, of metals formed of iron mixed with small percentages of carbon. Smiths used salvaged steel, which came from many sources including old automobiles, machinery, ships, and bridges.

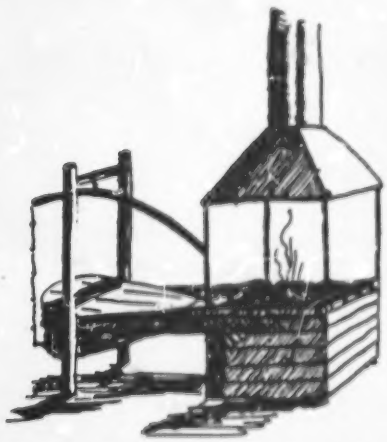
After World War I, due to increasing popularity of automobiles and the development of more advanced mass-production techniques, blacksmithing diminished even further. Thus the nature of the blacksmith's work changed with the times.

B. THE BLACKSMITH AT WORK IN HIS SHOP

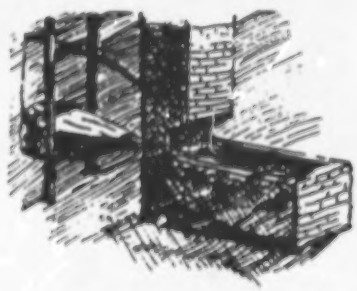
The name of this important artisan tells us a bit about how he worked. The word blacksmith comes from two sources: smith from smite, which means to strike or hit hard; and black from black metal, the name given to iron to distinguish it from other metals such as silver and tin.

The Forge

A fire of blacksmith's coal, soft coal, was made in the forge, or furnace. The forge was made of brick, stone, or wood lined with clay, and was deep and wide. Some forges contained a hood and chimney to carry out the smoke and ash.



Wood and clay forge

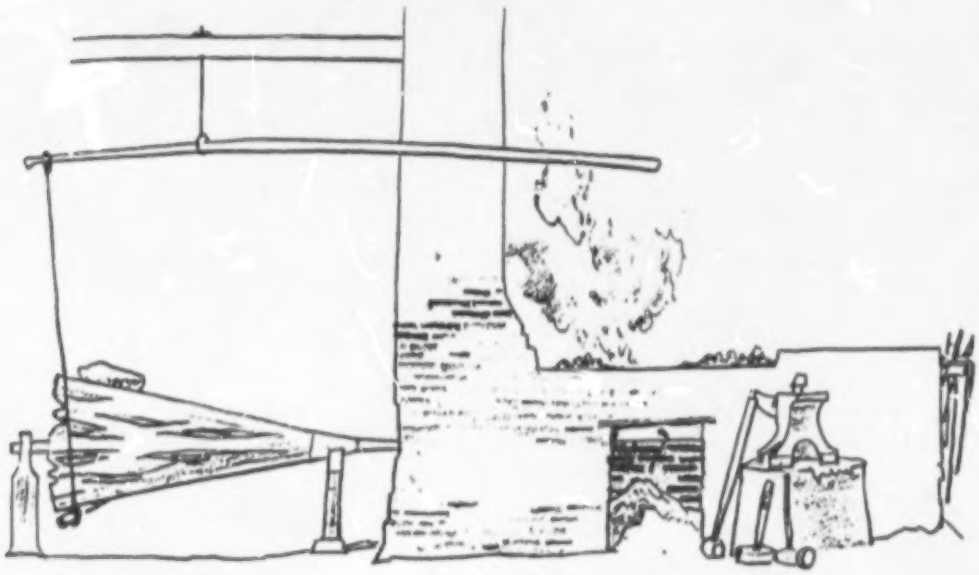


Brick forge

The Fire

It was important for the blacksmith to make a proper fire. Heating small pieces called for a shallow fire, and heating large pieces required a deep narrow fire. In the earlier days, charcoal was used as a fuel, but coal was used later due to its greater ability to concentrate heat. Different fuels required different starting techniques and methods of feeding the fire.

A bellows, or fan, blew air into the fire and kept it going.



The Anvil

Forging was done on an anvil, an iron or steel block on which the metal objects were hammered into shape. The blacksmith used an anvil that weighed anywhere from 25 to 800 pounds, depending on whether the work was light or heavy. Anvils came in a variety of shapes and had curved or flat faces. The most common anvils were either square or had one or two horns. Anvils were generally mounted on a log or wooden stump, allowing for buoyancy when the iron was hammered. They were placed near to the forge to minimize heat loss when carrying work to the anvil.

Hand Tools

Blacksmiths' shops contained the basic hand tools necessary for shaping, cutting, and bending the iron. Some of those tools were: hammers and tongs of many shapes and sizes, hardies or chisels, swages for molding the iron into distinct shapes, punches, cutters, and innumerable other tools for producing the myriad of items that were the blacksmith's trade.

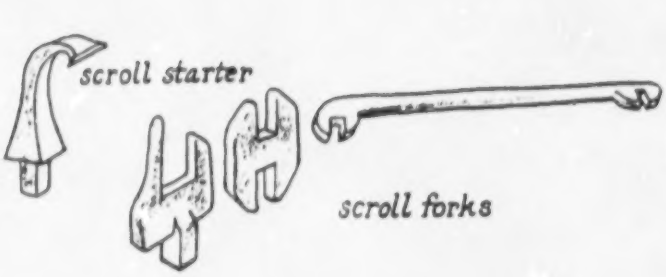
Heating and Shaping the Iron

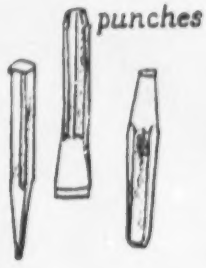
In order to forge, or shape the iron, it had to be heated to a pliable or molten (melted) state. The hotter the metal, the more easily it could be worked. Each heating of the iron was called a heat, and it was best to use as few heats as possible during the working of an object, since heating affected the hardness of the metal.

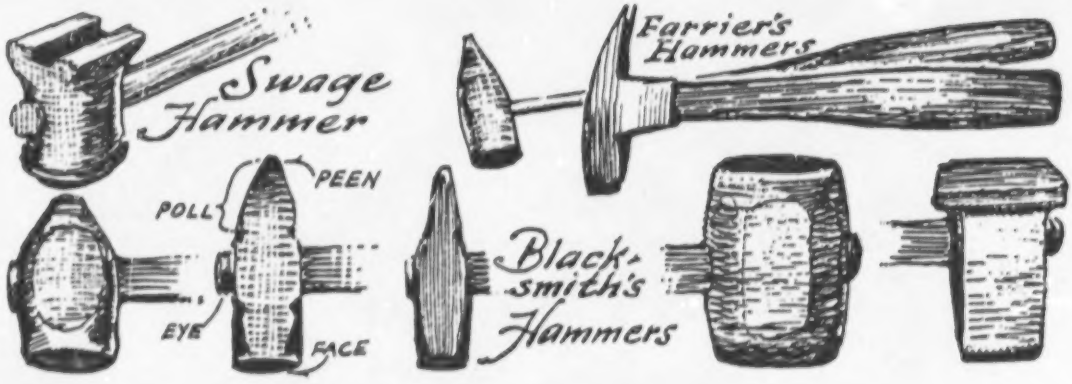
In order to judge the temperature of the iron or steel one simply observed its color. Those metals subjected to heat turned the following colors: first pale yellow, then straw yellow, purple, blue, gray, dull red, sunrise red, bright red, orange, white, incandescent white, and incandescent yellow. Following this last color the metal sparked, indicating that it was burning. Iron and steel could be worked at any of the stages from sunrise red to sparking. However, if the burning stage was prolonged, the metal became slag and had to be discarded.

Tempering the iron, which meant heating and suddenly cooling the iron in order to derive the proper texture or hardness, was an important part of the forging process. For this purpose a tub of water was necessary, and often an old whiskey or wine barrel was used. Sometimes it was necessary to cool iron more slowly, especially when tools or knives needed sharpening, and for this purpose brine and oil were used as cooling substances.

Some of the more basic of the forging techniques were: flattening, cutting, punching (making a hole in the iron), welding (joining two pieces together), beveling (hammering the edge of a bar to create a diagonal surface), and shaping. Each of these techniques involved specialized tools and forms.







Forging was limited not only by the abilities of the craftsman, but by the quality of the iron itself. Each blacksmith made judgments in how best to use the materials at hand. Differences in ability and style also personalized the objects which were created and repaired.

Blacksmithing was not only a skill but an art.

C. BLACKSMITHING TODAY

Industrialization in the last century has virtually wiped out the business of the blacksmith. There are but a few blacksmiths left, who work mainly repairing mass-produced machines or making horseshoes at the race-tracks. For most it is a sideline rather than a primary occupation.

As part of the current trend of rediscovering old crafts, there are a few blacksmiths left today who work primarily for the purpose of preserving the art and skill and keeping alive the memory of their predecessors, craftsmen who worked in iron.

II. CLASSROOM ACTIVITIES

A. PRE-TRIP ACTIVITIES

The Brookville Blacksmith Program can be an exciting facet of an overall effort to understand and appreciate life in the past. The activities described below are simply suggestions for preparing your students for their experience at Brookville. There are many ways to accomplish this goal since any activity which facilitates the development of an historical perspective will enhance the Brookville experience as well. Your judgment, based on the specific needs and interests of your students, should be the major consideration in deciding how best to prepare for the Blacksmith Program.

Life in the Past

The understanding that the homesteader's life differed considerably from suburban life today is an important conceptualization which will enhance the student's experience in the Blacksmith Program. Basically, students need to develop an historical perspective. By comparing the homesteader's life to their own, it may be possible for students to "transport" themselves back in history while at Brookville. Please refer to the BOCES supplementary curriculum sheet, Homestead Ecology for more information and some suggested activities for developing these understandings with your class.

The Blacksmith's Role

The following discussion questions and activities suggest ways to investigate the blacksmith's role in the past.

1. What items in your home and school would have been made by blacksmiths in the past? (Examples: pots and pans, knives, axes, nails, etc.) What parts of objects would blacksmiths have made in the past that are today made by mass-production? (Examples: hinges on a door, window latches, handles, etc.)

2. Where might you find tools and objects that were handcrafted by blacksmiths? How do these objects differ from manufactured items of today? Why are these antique objects of value today?

3. The following is a partial list of other craftsmen needed in an early American village. What objects did the blacksmith make for these craftsmen?

Butcher	Cabinetmaker	Wheelwright
Baker	Builder	Shipwright
Chandler (candlemaker)	Locksmith	Farmer
Coppersmith (worker in copper)	Miller	Gunsmith
	Sawyer	Tinsmith
Cooper (barrel maker)	Carpenter	Joiner

Vocabulary

The underlined words in the background text of this booklet provide a basic vocabulary list for study before the field experience at Brookville.

B. ON-SITE ACTIVITIES

Having scheduled your Blacksmith Program date for the Brookville Center, you can look forward to a hands-on learning experience for your students that actively involves them in this early American craft. Under the careful supervision of BOCES Naturalists, the students as a group will create several items by operating the forge and pounding out the hot iron themselves. The Naturalists will utilize this time to impart appropriate information concerning the methods and history of blacksmithing.

With direct involvement in this once highly-valued craft, it is hoped that a deeper appreciation of the life-styles of early American settlers can be developed. Beyond this immediate goal, there is the intention that this experience contribute to the further understanding of ourselves and our relationship to the world in which we live.

C. POST-TRIP ACTIVITIES

Upon your return from the Brookville Center with your newly created items, you have the opportunity to develop many new learning experiences tangent to this one. It is hoped that the added motivation provided by a first-hand experience will facilitate your efforts in this endeavor. Below you will find some brief descriptions of possible post-trip activities. As with the pre-trip activities, these suggested follow-up approaches are only the tip of the iceburg. Hopefully, you will feel free to take off in any direction.

Story Writing, Role Playing, Skits

1. Write individual or group stories. (Example: "My Day as the Blacksmith's Apprentice") Illustrate the stories.

2. Act out scenes from the students' stories. Create a skit to dramatize an event in the blacksmith's shop.

3. Write a legend describing how the blacksmith got his name.

4. Write a newspaper article for the "Brookville Gazette" describing an event at the blacksmith's shop.

Blacksmithing

1. Make a flow chart or mural of the steps taken to produce a nail in the blacksmith shop. Compare today's methods and materials utilized in making nails to those used by the blacksmith.

2. Make a mobile of some of the homesteaders' tools and utensils.

3. Make a "picture dictionary" of the vocabulary words which relate to blacksmithing.

4. Research the differences in various metals and various heat sources. Look at the blacksmith's choices for each of these compared to the choices we have today.

5. Research the sources and transportation of the materials used by blacksmiths. Share the facts which are found using charts, pictures, and/or written description.

Town History

1. Research the history of the particular community in which the students live. Find out facts such as the origin of the town name, the products or services in which the town specialized, notable events in the town's history, etc.

2. Write and illustrate a "history book" of the town.

3. Draw a map showing the location of buildings and streets in the town which have historical significance.

4 Draw a mural illustrating the students' images of what the town might have looked like at some point in the past.

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